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Clamart, 30 November 2004

International Patent Application no. **PCT/EP 03/11173**
Applicants: **Services Pétroliers Schlumberger et al.**
Our Ref: **WO 21.1075**

Dear Sirs,

I refer to the Written Opinion dated September 3rd, 2004 and provide herewith arguments to overcome novelty objection raised against claim 10 as filed. Set of claims as filed thus remain unchanged.

Document D1, FR 2 402 188 discloses an apparatus for measuring the interior dimensions of the walls of a hollow body. The apparatus is insertable into a restricted opening of the hollow body and includes means for transmitting a beam of electromagnetic energy towards an interior wall of the hollow body. When the electromagnetic energy illuminates the interior wall, acoustic waves are radiated back to the apparatus. The apparatus detects the acoustic waves and measures the elapsed time between transmission of the electromagnetic energy and detection of the acoustic waves. From elapsed time measurements the dimensions of the interior walls are obtained.

As recited in claim 10, the device of the present invention aims at detecting the position of an interface situated in a formation which contains at least one electrolytic liquid. The position of said interface being determined in regard of the borehole walls. Means of calculation of said device enables to know the propagation velocity of sound in the formation.

Nothing in document D1 discloses the fact that the interface is situated in a formation and that said formation is filled with an electrolytic fluid. On the contrary, the device of document D1 aims at propagating waves in a hollow body. In this document, "interface" could only refer to the walls of the hollow body, which is completely different from the "interface" of the invention.

Therefore, it cannot be asserted that claim 10 lacks novelty in view of document D1 since claim 10 is not entirely readable in said document. At the very least, objection that "the

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device is suitable to be used in a borehole for locating an interface " is considered to be an inventiveness one.

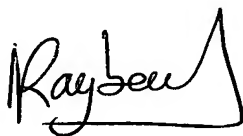
As explained in description of the invention, page 8 to page 9 line 10, the method according to the invention is based on electro osmosis coupling effects. These effects are explained in the context of either a solid medium or a porous geological formation containing at least one electrolytic fluid that is generally a mixture of water and hydrocarbon.

Addressing a problem related to the measure of the interior dimensions of the walls of a hollow body, document D1 would certainly not be retained by the man skilled in the art when seeking for solving a problem that relates to determination of an interface situated interior a geological formation.

In this sense, claim 10 is also inventive in view of document D1.

The applicants believe that this response addresses the issues raised by the examiner and request that a favorable international preliminary examination report be issued forthwith.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Raybaud', with a stylized flourish at the end.

Hélène RAYBAUD
European Patent Attorney